

REMARKS

A total of 52 claims remain in the present application. The foregoing amendments are presented in response to the Office Action mailed February 23, 2004, wherefore reconsideration of this application is requested.

By way of the above-noted amendments, the claims have been amended to more explicitly define features of the present invention. In particular, claim 1 has been amended to define that the "the first and second hyper-concatenated data streams compris[e] respective portions of an input signal having a variable user-selected concatenation ...". Similar amendments have been effected in independent claims 19 and 31, and consequential amendments effected in claims 19, 39 and 52.

In preparing the above-noted amendments, careful attention was paid to ensure that no new subject matter has been introduced. In particular, the originally filed specification states that:

"The OP-N connection is "concatenatable", in that an end user can transport arbitrarily concatenated signal traffic through the OP-N connection. In principle, virtually any combination of concatenated and non-concatenated signals may be used, up to the bandwidth capacity of the OP-N connection. The traffic mixture (i.e., the mix of concatenated and non-concatenated traffic) within the OP-N connection can be selected by the end user to satisfy their requirements, and may be changed by the end user as those requirements change, without requiring re-configuration of the OP-N connection. For example, with an OP-60 connection (i.e. N=60, and the OP-60 therefore has a bandwidth capacity equivalent to an Optical Carrier OC-60 signal) an end user could select a traffic mix of: five STS-12c connections on one day; one OC-48c and 12 (unconcatenated) STS-1 connections on another day; and two STS-24 and two STM-4 connections at some other time. Other traffic combinations are also possible, all at the discretion of the end user, and

without intervention from a service provider." (See page 1 line 23 through page 2, line 14, underlining added)

and

" In the illustrated embodiment, the OP-N connection 16 is an OP-192 connection, thus having a bandwidth equivalent to $N = 192$ STS-1 signals. Within this connection, signal concatenation is not provisioned, so that an arbitrary concatenation scheme ... can be defined by an end user." (Page 13, line 31, to Page 14, line 5, underlining added)

Thus the originally filed specification explicitly states that the concatenation of traffic within the OP-N connection is arbitrarily selected by the end-user, and can be arbitrarily changed by the end user without intervention by the network service provider. Thus it will be clear that the traffic mixture within the OP-N connection is "user-selected" and "variable". Clearly, this user-selected and variable concatenation extends to the input signal received at a source node of an OP-N connection, and the output signal reconstructed by the end node of the OP-N connection. Thus: at Page 25, lines 4-6:

" High bandwidth data traffic originating at the end-user's communications device 8 is inverse-multiplexed across the hyper-concatenated channels of the OP-N connection 16, at the source node 10a, and launched as hyper-concatenated data streams through the OP-N connection 16. Each channel carries a respective data stream.."

In light of the foregoing, it is believed that amendments in the claims to emphasize that the "hyper-concatenated data streams compris[e] respective portions of an input signal having a variable user-selected concatenation ..." is fully supported by the originally filed specification, and does not introduce new subject matter.

Referring now to the text of the Office Action:

- a) claims 1, 2, 4, 6, 7, 16-23, 25, 27, 28, 36-43 and 52 stand rejected under 35 U.S.C. § 102(b), as being anticipated by United States Patent No. 5,257,261 (Parruck et al.);
- b) claims 5, 8, 9, 26, 29, 30 and 44 stand rejected under 35 USC § 103(a) as being unpatentable over the teaching of United States Patent No. 5,257,261 (Parruck et al.);
- c) claims 2 and 24 stand rejected under 35 USC § 103(a) as being unpatentable over the teaching of United States Patent No. 5,257,261 (Parruck et al.) in view of United States Patent No. 6,160,819 (Partridge et al.); and
- d) claims 10-15, 31-35, and 45-51 are objected to as being dependent on a rejected base claim but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

As an initial matter, applicant appreciates the Examiner's indication of allowable subject matter in claims 10-15, 31-35 and 45-51. The Examiner's rejections of claims 1-9, 16-30, 36-44 and 52 are believed to be traversed by the above-noted claim amendments, and further in view of the following discussion.

The Examiner's comments at paragraph 1 of the detailed action are well taken. Accordingly, independent claims 1, 19, 39 and 52 have been amended to explicitly define features of the hyper-concatenated connection, and the hyper-concatenated data streams, which define over the known prior art. In particular, as described above, the originally filed specification teaches that the concatenation of the hyper-concatenated connection is not provisioned, so that a high bandwidth input signal can have an arbitrary and variable concatenation that is defined (and can be changed) by the end-user. At a source node of the hyper-concatenated connection, the high bandwidth input signal is inverse-multiplexed across two or more hyper-concatenated data streams, which are transported through respective parallel channels of the hyper-concatenated connection. Thus each hyper-concatenated data stream

necessarily comprises a respective portion of the input signal. The independent claims have been amended to emphasize this characteristic of the present invention.


None of the known prior art teaches or suggests the features of amended claims 1, 19, 39 and 52. With respect to United States Patent No. 5,257,261 (Parruck et al.), Applicant appreciates the Examiner's observation that the system of Parruck et al can accommodate different concatenation schemes, such as STS-3 or STS-3c. However, in the system of Parruck et al, the concatenation scheme of each of the lower-rate signals is provisioned by the network service provider, along with the appropriate inverse-multiplexing and multiplexing operations within the end-nodes. Thus, the concatenation scheme of Parruck et al is not arbitrary at all, but rather is provisioned by the network service provider during set-up of the connection, and remains and "nailed-up" for the duration of the connection. If the end user wishes to utilize a different concatenation scheme, the original connection must be torn down by the network service provider, and a new connection established that will support the end-user's new concatenation scheme. This is entirely different from, and in no way suggests, the methods and systems of the present invention, in which the concatenation of the hyper-concatenated connection is not-provisioned at all, so that the concatenation scheme of the input signal is defined and changeable by the user.

United States Patent No. 5,257,261 (Parruck et al.) does not teach or suggest a system capable of aligning "data streams comprising respective portions of an input signal having a variable user-selected concatenation", as defined in the amended claims. None of the known prior art provides the missing teaching.

In light of the foregoing, it is respectfully submitted that the presently claimed invention is clearly distinguishable over the teaching of the cited references, taken alone or in any combination. Thus it is believed that the present application is in condition for allowance, and early action in that respect is courteously solicited.

If any extension of time under 37 C.F.R. § 1.136 is required to obtain entry of this response, such extension is hereby respectfully requested. If there are any fees due under 37 C.F.R. §§ 1.16 or 1.17 which are not enclosed herewith, including any fees required for an extension of time under 37 C.F.R. § 1.136, please charge such fees to our Deposit Account No. 19-5113.

Respectfully submitted,
Ronald J. Gagnon, et al


By: Kent Daniels, P.Eng.
Reg. No. 44,206
Attorney for the Applicants

Date: May 19, 2004

Ogilvy Renault
Suite 1600
1981 McGill College Avenue
Montreal, Quebec
Canada, H3A 2Y3
(613) 780-8673